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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,635	03/14/2001	Donald Chaffee		2501

7590 11/01/2005
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EXAMINER

CHANG, RICHARD

ART UNIT PAPER NUMBER

2663

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,635

Applicant(s)

CHAFFEE ET AL.

Examiner

Richard Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 1,2,14,21,32,33 and 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-13,15-20,22-31,34-39 and 41-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's arguments and amendments, filed on 07/27/2005, with respect to claims 1-50 have been fully considered but are moot in view of the new ground(s) of rejection.

Claims 1-2, 14, 21, 32-33 and 40 had been canceled.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3-13, 15-20, 22-31, 34-39, 41-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,456,599 ("Elliott") in view of US patent No. 6,418,139 ("Akhtar") and US patent No. 6,084,858 ("Mathews et al.").

Regarding claims 41-44, Elliott teaches a communication network comprising a plurality of nodes (a network having a plurality of nodes) (Fig. 2) wherein each node has a central processing unit (CPU as block 3), a memory (block 4) suitable for computing capacity and a transceiver (block 6)

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from communication with other nodes (wherein each of ... with one or more other nodes) (See Fig. 1, Col. 6, lines 25-34),

determines the best path for said communication to the destination node through a neighboring node based on information received from each neighboring node (See Col. 5, lines 34-55),

based only on communications from the nodes that are in direct communication with said node wherein said communication paths to the best neighboring node are re-evaluated independently by each node as new information concerning any path is received from any neighboring node, continuing the steps until the destination node receives the communication (See Col. 9, line 44 - Col. 10, line 65),

wherein the communication path from source node A to destination node D (Fig. 2) may contains at least node C or node E (wherein a communication sent ... one or more nodes) (Fig. 2), and

wherein each node gathers information regarding potential neighbors and each node determines a best-path transmission path to optimally send or receive messages through the network (wherein each of said nodes in said ... from each neighboring node) (See Fig. 3 and Fig. 4, Col. 8, lines 17-35).

Elliott teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of self-learning process to build a total network topology.

Akhtar teaches a way all the nodes learn of all the nodes neighbors and thus build the total network topology such that each node calculates its cost to its

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neighbors (502) and stores these costs within a database and will send information to each other to build routing tables (See Fig. 5 Col. 7, lines 44-57).

A person of ordinary skill in the art would have been motivated to employ Akhtar in Elliott in order to obtain a communication network comprising a plurality of nodes and to take advantage of self-learning process via neighboring communication nodes the updated best routing information in claims 41-44.

The suggestion/motivation to do so would have been to utilize self learning process via neighboring communication nodes the updated best routing information, as suggested by Akhtar in Col. 7, lines 44-57. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Akhtar with Elliott to obtain the inventions specified in claims 41-44.

Regarding claims 22, this claim have limitation that is similar to those of claim 42 and Elliott further teaches that the potential neighbor updates are issued on an event-driven basis including a change in a node's set of potential neighbors and a node would thus upgrade a subset of its potential neighbors to actual neighbors and issues potential-neighbor updates (wherein communication paths ... generated by neighboring nodes) (See Fig. 3, Col. 5, lines 24-28), thus it is rejected with the same rationale applied against claim 42 above.

Regarding claims 3 and 23, this claim have limitation that is similar to those of claims 1 and 21 and Elliott further teaches that the Dijkstra's algorithm determines the best path using the lowest cost from a set of shortest paths from the calculating node to all other nodes in the network. (the best path is one that

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minimizes a selected cost function) (See Fig. 2, Col. 5, lines 44-54), thus it is rejected with the same rationale applied against claims 41 and 42 above.

Regarding claims 5 and 25, this claim have limitation that is similar to those of claims 1 and 21 and Elliott further teaches each node has a snapshot database including actual and potential neighbors and a shortest path tree with itself as the root and all other nodes and a path metric is the sum of the lengths along that path (the metric includes the number of ... reaching the destination node) (See Fig. 2, Col. 8, lines 19-27), thus it is rejected with the same rationale applied against claims 41 and 42 above.

Regarding claims 8 and 28, this claim have limitation that is similar to those of claims 1 and 21 and Elliott further teaches that if a node noticed a heavy flow of messages along a network path that could be handled more efficiently if the network topology were slightly adjusted, it could send a message to the affected nodes requesting them to upgrade their potential neighbor relationships to actual neighbor relationships (the metric includes the traffic burden on individual nodes in the network) (See Fig. 3, Col. 6, lines 3-14), thus it is rejected with the same rationale applied against claims 41 and 42 above.

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Regarding claims 15 and 34, this claim have limitation that is similar to those of claims 41 and 42 and Elliott further teaches that that each node has a snapshot database and a shortest path tree to generate a forwarding table that optimally indicates which overall path having the lowest cost should be used for any giving destination node (information that is used for path selection is maintained in a table in each node) (See Fig. 10, Col. 8, lines 19-25), thus it is rejected with the same rationale applied against claims 41 and 42 above.

Regarding claims 4 and 24, as discussed above, Elliott and Akhtar teach substantially all the claimed invention but did not disclose expressly the particular application involving limitation of

“the cost function is composed of one or more metrics that are defined by the goals of the particular network”.

Mathews et al teach a communications network particularly to a method of distributing communication loads over multiple alternative paths wherein the selection of the best path may be based upon finding a path which is optimal for one or more metrics through a network which satisfies a number of independent constraints (at least one switch of at least one stage comprising a time-slot interchanger); (See Fig. 1, Col 5, lines 54-65).

A person of ordinary skill in the art would have been motivated to employ Mathews et al in Elliott and Akhtar in order to obtain network node arrangements that gather information regarding neighboring nodes and distribute the information regarding the neighbors throughout the network and to take

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advantage of one or more metrics through a network which satisfies a number of independent constraints in claims 4 and 24.

The suggestion/motivation to do so would have been to accommodate network node arrangements that gather information regarding neighboring nodes and distribute the information regarding the neighbors throughout the network and to take advantage of one or more metrics through a network which satisfies a number of independent constraints in claims 4 and 24. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Mathews et al with Elliott and Akhtar to obtain the inventions specified in claims 4 and 24.

Regarding claims 6 and 26, in the previous action item 4, Elliott and Akhtar teach substantially all the claimed invention but did not disclose expressly the particular application involving limitation of

"the metric includes the probability of successful transmission though a route".

Mathews et al further teach that all the successful paths are evaluated and the path, which best fits the desired result is, selected based on the metric of highest probability (the metric includes the probability of successful transmission though a route) (See Col 7, lines 12-17).

A person of ordinary skill in the art would have been motivated to employ Mathews et al in Elliott and Akhtar in order to obtain network node arrangements that gather information regarding neighboring nodes and distribute the information regarding the neighbors throughout the network and to take

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advantage of the metric includes the highest probability of successful transmission through a route as in claims 6 and 26.

The suggestion/motivation to do so would have been to accommodate network node arrangements that gather information regarding neighboring nodes and distribute the information regarding the neighbors throughout the network and to take advantage of the metric includes the highest probability of successful transmission through a route as in claims 6 and 26. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Mathews et al with Elliott and Akhtar to obtain the inventions specified in claims 6 and 26.

Regarding claims 7 and 27, these claims have limitation that is similar to those of claims 41 and 42, thus it is rejected with the same rationale applied against claims 41 and 42 above.

Regarding claims 9 and 29, these claims have limitation that is similar to those of claims 41 and 42, thus it is rejected with the same rationale applied against claims 41 and 42 above.

Regarding claims 10 and 30, these claims have limitation that is similar to those of claims 41 and 42, thus it is rejected with the same rationale applied against claims 41 and 42 above.

Regarding claims 11 and 31, these claims have limitation that is similar to those of claims 41 and 42 and Mathews et al. further teach that the metrics are based on the relative value of each parameter a weighted computation is made

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to determine the best route along the path (See Col. 7, lines 25-55), thus it is rejected with the same rationale applied against claims 41 and 42 above.

Regarding claims 12-13, these claims have limitation that is similar to those of claim 41, thus it is rejected with the same rationale applied against claim 41 above.

Regarding claims 16-17, these claims have limitation that is similar to those of claim 41, thus it is rejected with the same rationale applied against claim 41 above.

Regarding claims 18-20, these claims have limitation that is similar to those of claim 41, thus it is rejected with the same rationale applied against claim 41 above.

Regarding claim 35, this claim has limitation that is similar to those of claim 34, thus it is rejected with the same rationale applied against claim 34 above.

Regarding claims 36-39, these claims have limitation that is similar to those of claim 42, thus it is rejected with the same rationale applied against claim 42 above.

Regarding claims 45 and 48, these claims have limitation that is similar to those of claims 43 and 44, thus it is rejected with the same rationale applied against claims 43 and 44 above.

Regarding claims 46 and 49, these claims have limitation that is similar to those of claims 43 and 44, thus it is rejected with the same rationale applied against claims 43 and 44 above.

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Regarding claims 47 and 50, these claims have limitation that is similar to those of claims 43 and 44 and Mathews et al. further teach that the metrics are based on the relative value of each parameter a weighted computation is made to determine the best route along the path (See Col. 7, lines 25-55), thus it is rejected with the same rationale applied against claims 43 and 44 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RCC

rkc

Richard Chang
Patent Examiner
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10/2/05
DERRICK FERRIS
PATENT EXAMINER